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(74) Common Representative: **KONINKLIJKE PHILIPS
ELECTRONICS N.V.**; c/o LUNDIN, Thomas, M., 595
Miner Road, Cleveland, OH 44143 (US).

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(71) Applicant (for all designated States except US): **KONIN-
KLJKE PHILIPS ELECTRONICS N.V.** [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

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(71) Applicant (for AE only): **U.S. PHILIPS CORPORA-
TION** [US/US]; 1251 Avenue of the Americas, New York,
NY 10510-8001 (US).

(72) Inventors; and

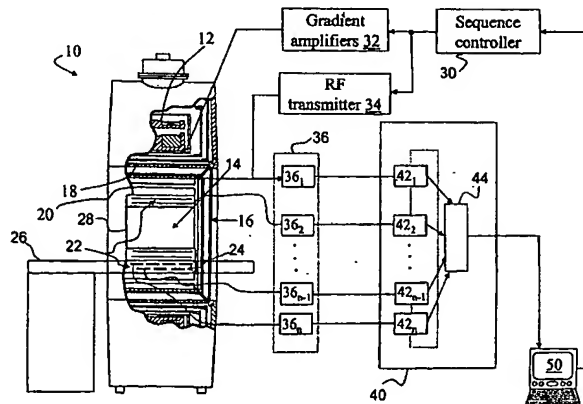
(75) Inventors/Applicants (for US only): **GRAESSLIN,**
Ingmar [DE/NL]; P.O. Box 220, NL-5600 AE Eind-
hoven (NL). **EGGERS, Holger** [DE/NL]; P.O. Box 220,
NL-5600 AE Eindhoven (NL).

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(54) Title: **EFFICIENT MAPPING OF RECONSTRUCTION ALGORITHMS FOR MAGNETIC RESONANCE IMAGING
ONTO A RECONFIGURABLE RECONSTRUCTION SYSTEM**



(57) Abstract: A magnetic resonance (MR) system (10) includes radiofrequency (RF) transmitters (34) which send RF pulses into an examination region (14) to excite a spin system to be imaged. Coil elements (20, 24, 28) pick up an MR signal, which is demodulated and converted into digital data by RF receivers (36). A plurality of independent parallel processing channels (42₁, 42₂, ..., 42_n) is operatively connected to the RF receivers to reconstruct images from the digital data. The parallel processing channels (42₁, 42₂, ..., 42_n) include one or more pipeline stages (54₁, 54₂, ..., 54_n). Processing channels and pipeline stages include a plurality of processing or reconstruction units (52). Processing tasks are dynamically allocated to these processing or reconstruction units on a per scan basis using a single general strategy for mapping processing tasks to hardware resources. The connections (56) between the processing or reconstruction units (52) are reconfigured using a switching means (60). In this manner, different numbers of coil elements (20, 24, 28) can be connected with matching numbers of processing channels (42₁, 42₂, ..., 42_n) to exploit available processing resources optimally.

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